Space Weather Forecast

Issued on Friday, 19 November 2021 at 12:45 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of G1/Minor geomagnetic storms this weekend.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Very Low over the last 24 hours, with no significant X-ray flare activity observed. There are two active sunspot regions on the visible disc: AR2896 and AR2897. Both regions are small, weak, magnetically simple, stable and located in the eastern hemisphere.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery..

Solar Wind / Geomagnetic Activity: The solar wind parameters indicate a gradual exit from the high speed stream of coronal hole 19. The solar wind speed, as measured by DSCOVR and ACE at L1, started the period at elevated levels, then gradually declined by the end of the period to slightly elevated. The interplanetary magnetic field was weak and very stable, with only weak deflections both positive and negative. Therefore, despite the strength of the solar wind, geomagnetic activity was Quiet (Kp 0-2) throughout.

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be very low, with a daily 10% slight chance of common-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the current forecast. The coronal hole forecast comprises of a continuing slow decline from the current high speed stream of coronal hole 19; before the next high speed stream arrives, this time from coronal hole 20 during the second half of day 2. Geomagnetic activity is expected to be Quiet on day 1 and the first half of day 2, before increasing predominantly Unsettled to Active during the second half of day 2, with a chance of G1/Minor geomagnetic storms. A similar theme is expected days 3 to 4 as coronal hole 20 continues to have effect at Earth, but with a likely declining risk of G1/Minor geomagnetic storms later in the period.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	50	50	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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